Recommendations of the Heliospheric Strategy Panel

- The Heliospheric Strategy Panel has thoughtfully considered those aspects of heliospheric research that have significant impact on Life and Society. The HSP finds that the most important LWS Sentinels science objectives are to understand fully the solar origin and inner heliospheric propagation of geoeffective transients and high energy particle events. A detailed set of science objectives is listed in the full HSP report. The corresponding measurement requirements make it clear that multiple inner heliospheric (< 0.5 AU) in-situ observations will be necessary beyond those provided by any of the existing or planned missions.

- Targeted heliospheric science research that aims to connect solar, interplanetary and magnetospheric (and other planetary) observations should be vigorously supported even before the launch of any dedicated Sentinels hardware. Such support will ensure that the scientific community maintains vitality and is poised to achieve the Sentinels objectives when the dedicated Sentinels missions are begun. Moreover, it will enable the investigations of those objectives that can be addressed with current assets. It is recommended that either a dedicated LWS Sentinels research line or a more substantial TR&T segment focused on the heliosphere be established.

- The HSP was also asked to investigate how currently existing and already planned missions can be best used to fulfill Sentinels objectives. The panel has found that objectives focusing on the near 1 AU angular extent of SEP beams and CMEs, shock modulation of energetic particles and compositional fingerprints of the solar origin of solar ejecta can be addressed by coordinating the unique 3D configuration of afforded by STEREO, Ulysses and the L1 Cluster (ACE, WIND). Therefore, it is recommended that Ulysses, ACE and WIND operations be extended to overlap with STEREO.

- MESSENGER will be the only mission flying through the inner heliosphere during this decade. It is recommended that some means of collecting cruise data from this mission be investigated.

- It is likely that LWS Sentinels program will partner with a number of new and existing missions, effectively joining together missions that were not originally designed as a coordinated system. Therefore, it is recommended that a modest distributed data system be established. The cost should be relatively small in comparison to the funding made available for Sentinels science research investigations.

- The HSP identified a number of historical data sets that might significantly contribute towards the Sentinels science objectives but are at risk of disappearing. It is recommended that a proposal opportunity be identified where small data restoration proposals could be peer reviewed from Sentinels perspectives.